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横断山区马先蒿属新分类群

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NEW TAXA OF *PEDICULARIS* FROM THE HENGDUAN MOUNTAINS

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Abstract Six new species, 1 new subspecies and 1 new variety are described in this paper. They are *P. salviiflora* Franch. ex Forbes et Hemsl. var. *leiocarpa* H. P. Yang (Ser. Salviiflorae Prain), *P. rex* C. B. Clarke subsp. *zayuensis* H. P. Yang (Ser. Reges Li), *P. xiangchengensis* H. P. Yang (Ser. Cyathophyllae Li), *P. deqinensis* H. P. Yang (Ser. Myriophyllae Maxim.), *P. weixiensis* H. P. Yang (Ser. pectinatiformes Tsoong), *P. rizhaoensis* H. P. Yang (Ser. Lyratae Maxim.), *P. gongshanensis* H. P. Yang (Ser. Cernuae Li), *P. dulongensis* H. P. Yang (Ser. Wilsoniae Li).

Key words Hengduan Mountains; *Pedicularis*; New taxa

关键词 横断山区;马先蒿属;新分类群

1. **滑果丹参** 新变种

Pedicularis salviiflora Franch. ex Forbes et Hemsl. var. **leiocarpa** H. P. Yang, var. nov. (Ser. Salviiflorae Prain)

A var. *salviiflora* differt capsulis glabris.

Sichuan (四川): Muli (木里), alt. 3300 m, in *Picea asperata* forests on slopes, 1983. 08. 26., Exped. Qinghai-Xizang 83-13492 (Holotypus, PE).

本变种的蒴果平滑无毛,而原变种蒴果被密毛。

2. **察隅大王马先蒿** 新亚种

Pedicularis rex C. B. Clarke subsp. **zayuensis** H. P. Yang, subsp. nov. (Ser. Reges Li)

A subsp. *rege* differt floribus nec flavis, Sed galeis dilute purpuratis reliqui

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albis filamentis tantum anticis dense pilosis.

Xizang (西藏): Zayü (察隅), alt. 3200 m, growing in alpine pine forest, 1982. 06. 25., Exped. Qinghai-Xizang. 82-7620 (Holotypus, PE).

本亚种的花不为黄色，而盔带紫色，其余为白色，花丝仅前方一对被密毛而与原亚种(产四川、云南；缅甸，印度)不同。

3. **乡城马先蒿** 新种 图 3: 3.

Pedicularis xiangchengensis H. P. Yang, sp. nov. (Ser. Cyathophyllae Li)

Species *P. cyathophyllae* Franch. affinis, sed galea fronte secus marginem conspicue elevato-cristata, labii inferi lobo medio apice retuso facile differt.

Perennis, 30—50 cm alta, siccitate plus minus nigrescens. Radix lignosa, valida, ad 7 cm longa. Caules erecti, singulares vel 2—3 caespitosi, eramosi, plus minus quadriangulares, fere glabri. Folia basalia persistentia, plurima, petiolis 3—4 cm longis, complanatis, basi membranaceis leviter dilatatis; lamina oblonga usque lanceolato-oblonga, 8—10 cm longa, pinnatisecta, segmentis 10—15-jugis, oblongis, margine duplicato-serratis, fere glabra; folia caulina 4 verticillata, basalibus similia, sed petiolis ad basim valde dilatatis connatis, amplexicaulibus. Flores in racemos, disjunctos, ad 20—30 cm longos dispositi; bracteae foliiformes, petiolatae, dilatatae, connatae, cupuliformes, ad 2 cm longae; pedicelli breves, c. 1 mm longi. Calyx oblongus, c. 15 mm longus, fere glaber, antice vix ad medium fissus, dentibus 3—5, minoribus. Corolla c. 3.5—4 cm longa, purpureo-rubra, tubo c. 2.5—3 cm longo, extus glabro, galea pro parte antherifera subfalcato-geniculata, et conspicue elevato-cristata, antice gradatim in rostrum c. 6—7 mm longum attenuata, rostro paulo sigmoideo; labio infero magno, c. 13 mm longo, c. 12 mm lato, margine ciliato, lobo medio minore, apice retuso; filamenta omnia pilosa. Capsula in calyce persistente aucto majore inclusa, ellipsoideo-ovoidea plus minus complanata, c. 2 cm longa.

Sichuan(四川): Xiangcheng(乡城): alt. 4100—4300 m, in gullies or in forests on mountain slopes, 1981. 08. 06., Exped. Qinghai-Xizang 81-3829 (Holotypus, PE).

多年生草本，高 30—50 cm，干时多少变黑色。根木质化，粗壮，长达 7 cm。茎直立，单出或 2—3 条丛生，不分枝，多少四棱形，几无毛。基出叶宿存，多数，叶柄长 3—4 cm，扁平，基部膜质稍变宽，叶片长圆形至披针状长圆形，长 8—10 cm，羽状全裂，裂片 10—15 对，长圆形，边缘具重锯齿，几无毛；茎生叶 4 枚轮生，与基出叶相似，但柄近基部强烈膨大并相结合而抱茎。花排列成总状花序，长达 20—30 cm，有间距；苞片叶状，柄强烈结合成杯状，长达 2 cm；花梗短，长约 1 mm。花萼长圆形，长约 15 mm，几无毛，前方开裂几达中部，萼齿 3—5 枚，较小。花冠长约 3.5—4 cm，紫红色，花管长约 2.5—3 cm，外面无毛；盔在含雄蕊的部分近镰状膝曲，并有显明高凸的鸡冠状凸起，前方逐渐变细成长约 6—7 mm 的喙，喙稍作 S 状，下唇大，长约 13 mm，宽约 12 mm，边缘被缘毛，中裂较小，端微凹；花丝全部被毛。蒴果被包于宿存而较增大的萼内，椭圆状卵球形，多少扁平，长约 2 cm。

本种与斗叶马先蒿 *P. cyathophylla* Franch. 相近，但盔额沿边有明显高凸的鸡冠状凸起，下唇中裂端有凹缺而易于区别。

4. **德钦马先蒿** 新种 图 1: 1—3。

Pedicularis deqinensis H. P. Yang, sp. nov. (Ser. Myriophyllae Maxim.)

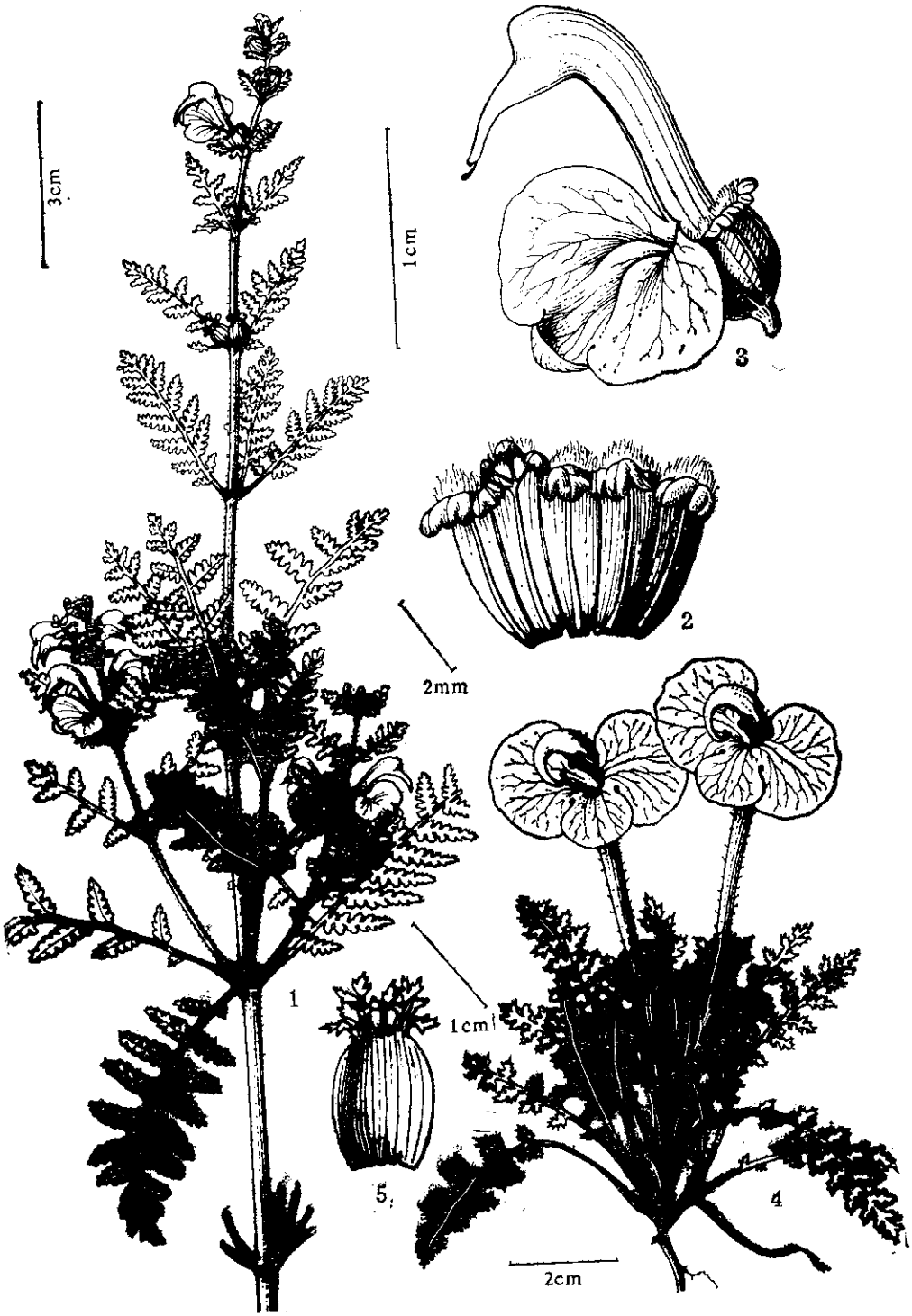

图1 1—3 德钦马先蒿 *Pedicularis deqinensis* 1.植株 plant; 2.花萼 calyx; 3.花 flower。
4—5.独龙马先蒿 *P. dulongensis* 4.植株 Plant; 5.花萼 calyx.

Species *P. cristatellae* Pennell et Li valde affinis, sed calycis dentibus plus minus flabelliformibus, labio infero in lobo medio apice valde saccato-cucullato, filamentis omnibus glabris diversa.

Annua, siccitate leviter nigrescens, 20—35 cm alta. Radix perpendicularis, ad 7 cm longa. Caules singuli vel saepe e rhizomate plures, erecti vel exteriores oblique ascendentes, fistulosi, plus minusve quadriangulares et 4-fariam pubescentes, supra medium saepe ramosi, ramis atropurpureis oppositis vel 3—4 verticillatis. Folia caulina plura 4 verticillata, petiolis 5—10 mm longis; lamina oblonga usque elliptico-oblonga, c. 2.5—5 cm longa, 8—25 mm lata, pinnatisecta, segmentis 5—12-jugis, oblongo-lanceolatis, c. 5—10 mm longis, pinnatifidis, margine cartilagineo-serratis, saepe reflexis, supra fere glabra, subtus sparse pilosa. Racemi elongati, ad 18 cm longi, verticillastris distantibus; bracteae foliiformes. Calyx cylindrico-campanulatus, c. 5 mm longus, antice paulo fissus, costis elevatis, dentibus 5, plus minus flabelliformibus, 3—4-fidis, saepe reflexis, extus omnino glaber, intus secus margines dentium sinusque densissime villosus. Corolla c. 15—18 mm longa; galea purpurea, ceterum lilacina. galea parte verticali 8—10 mm longa, apice fere angulo recto inflexa, fronte secus marginem procere cristata, rostro c. 5 mm longo; labio infero magno, c. 8 mm longo, 12 mm lato, lobo medio minore, apice valde saccato-cucullato; filamenta omnia glabra; stylus ex apice rostri corollae exsertus. Capsula ovoidea, 10 mm longa, apice apiculata.

Yunnan (云南): Deqen (德钦), alt. 2900—3400 m, in *Quercus semicarpifolia* forests and by the river valley, 1981. 08. 21., Exped. Hengduanshan. Inst. Bot. Acad. Sin. 3332 (Holotypus, PE).

一年生草本，干时稍变黑色，高 20—35 cm。根垂直向下，长达 7 cm。茎单条或多自根茎发出多条，直立或侧茎斜升，中空，多少带方形而有 4 条毛线，中部以上常分枝，枝暗紫色，对生或 3—4 条轮生。茎生叶多 4 枚轮生，叶柄长 5—10 mm，叶片长圆形至椭圆状长圆形，长约 2.5—5 cm，宽约 8—25 mm，羽状全裂，裂片 5—12 对，长圆状披针形，长约 5—10 mm，羽状半裂，边缘有软骨质的锯齿，常反卷，叶片上面几无毛，下面被疏毛。总状花序伸长达 18cm，轮生，有间距。花萼圆筒状钟形，长约 5mm，前方稍开裂，主脉隆起，萼齿 5 枚，多少扇形，3—4 裂，常反折，花萼外面均无毛，内面沿齿缘及缺口均有茸密的长毛。花冠长约 15—18 mm，盔紫色，其余淡紫色，盔直立部分长 8—10 mm，顶端几以直角内弯，前方边缘有高凸的鸡冠状凸起，喙长约 5 mm，下唇大，长约 8 mm，宽约 12 mm，中裂较小，端作强烈的囊勺状；花丝全部无毛，花柱自喙端伸出。蒴果卵圆形，长 10 mm，顶端具短尖头。

本种与具冠马先蒿 *P. cristatella* Pennell et Li 相亲缘，但萼齿多少扇形，下唇中裂顶端强烈囊勺状，花丝全部无毛而不同。

5. **维西马先蒿**　新种　图 2：4—6。

Pedicularis weixiensis H. P. Yang, sp. nov. (Ser. Pectinatiformes Tsoong)

Affinis *P. pectinatiformi* Bonati, a qua planta vix 20 cm alta, calycis dentibus posticis minoribus triangulatis reliquis plus minus flabelliformibus, margine grosse dentatis facile recedit.

Perennis, 20 cm alta, in sicco nunquam nigrescens. Radix perpendicularis, apicem versus fibris gracilibus praedita. Caules saepissime singuli, breve pilosi, inferne ramosi, inflorescentia excepta plerumque 3—4-nodosi. Folia basalia evanida; folia caulinaria 4 verticillata, petiolis c.

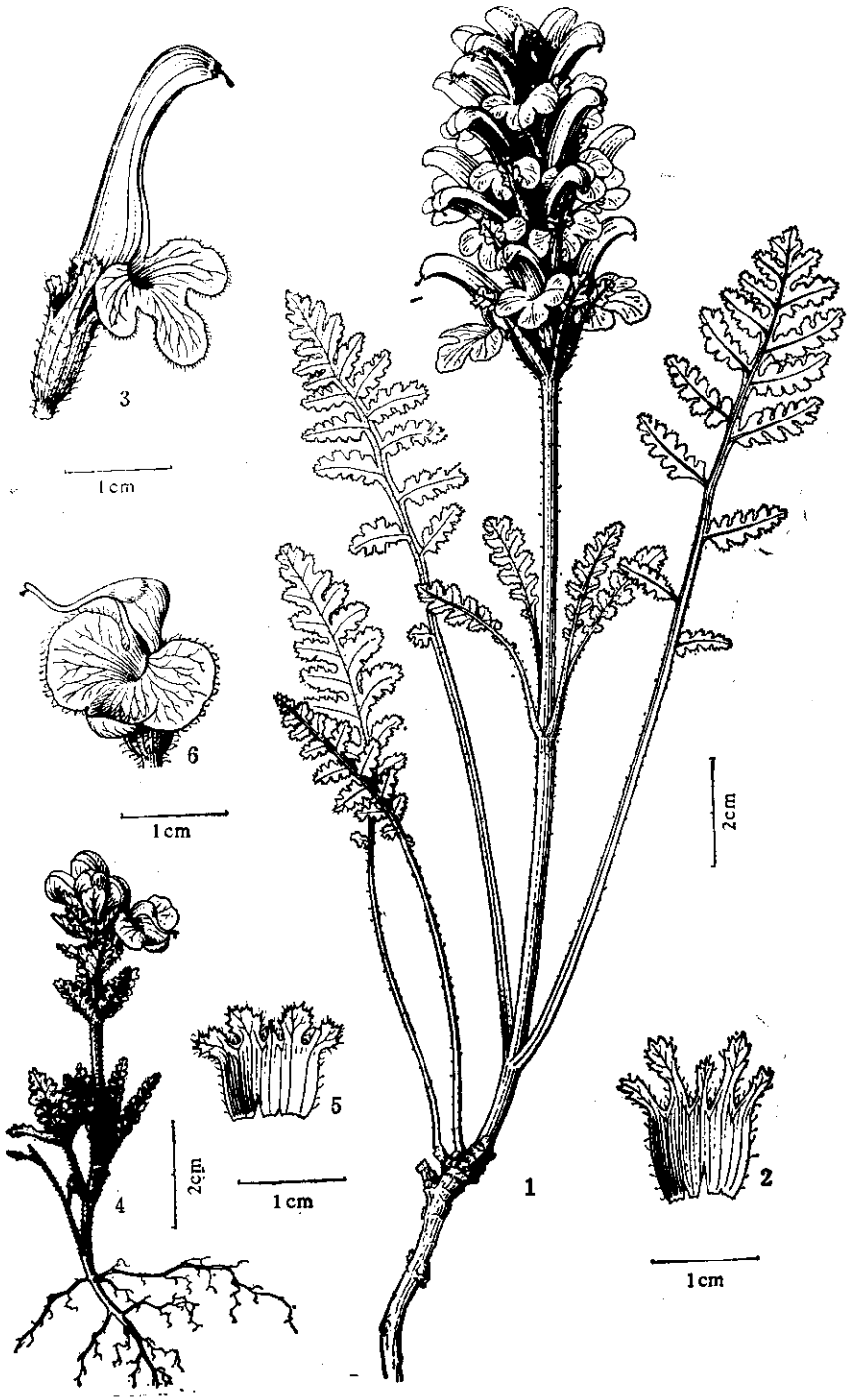

图 2 1—3.贡山马先蒿 *Pedicularis gongshanensis* 1.植株 plant; 2.花萼 calyx; 3.花 flower. 4—6.维西马先蒿 *P. weixiensis* 4.植株 plant; 5.花萼 calyx; 6.花 flower.

5 mm longis, superiora saepe fere sessilia; lamina anguste oblonga usque lineari-oblonga, 10—15 mm longa, pinnatipartita usque pinnatisecta, segmentis utrinsecus 6—8, ovatis, margine cartilagineo-serratis, supra pilosis, subtus albo-furfuraceis. Inflorescentia racemosa; bracteae folii-

formes. Calyx cylindrico-campanulatus c. 10 mm longus, antice ad 1/2 fissus, extus albo-pilosus, dentibus 5, inaequalibus, postico minore triangulato reliquis plus minus flabelliformibus margine grosse dentatis. Corolla c. 16 mm longa, flava, tubo recto, calycem paulo excedens; galea margine antice c. 5 mm alta, apice fere angulo recto in partem antherigeram patens, rostro c. 8 mm longo, tenui, paulo sigmoideo; labio infero magno, c. 10 mm longo, 15 mm lato, margine ciliato; lobo medio minore, apice valde saccato-cucullato; filamenta omnia dense pubescentia; stylus ex apice rostri exsertus.

Yunnan (云南): Weixi (维西), alt. 3600m, subalpine meadow on ridges, 1981. 07. 19., Inst. Bot. Acad. Sin. Exped. Hengduanshan, 1699 (Holotypus, PE).

多年生草本，高 20 cm，干时不变黑色。主根垂直向下，近端处有细侧根。茎多单出，被短柔毛，下部有分枝，花序除外一般仅有 3—4 个节。基出叶很快不见，茎生叶 4 枚轮生，叶柄长约 5mm，上部的叶通常几无柄，叶片狭长圆形至线状长圆形，长 10—15mm，羽状深裂至羽状全裂，裂片每边 6—8，卵形，边缘有软骨质地锯齿，上面被柔毛，下面被白色糠皮状物。花序总状；苞片叶状，花萼圆筒状钟形，长约 10 mm，前方开裂达 1/2，外面被白色柔毛，萼齿 5 枚，不等，后方的 1 枚较小，其余的多少扇形。花冠长约 16 mm，黄色，花管伸直，稍过于萼，盔直立部分前缘约高 5 mm，几以直角向前转折成为含有雄蕊的部分，喙长约 8 mm，狭细，稍 S 状弯曲，下唇大，长约 10 mm，宽约 15 mm，边缘被缘毛，中裂较小，顶端作强烈的囊勺状；花丝全部被密毛，花柱自喙端伸出。

本种接近拟篦齿马先蒿 *P. pectinatiformis* Bonati，但植株较低矮，仅高 20 cm，萼齿后方的 1 枚较小，三角形，其余多少扇形，边缘有粗齿易于区别。

6. **日照马先蒿**　新种　图 3：1—2。

Pedicularis rizhaoensis H. P. Yang, sp. nov. (Ser Lyratae Maxim.)

Species *P. tomentosae* Li affinis, sed corollae labio infero margine manifeste eroso-denticulato; lobo medio lateralibus majore; corolla rubella differt.

Perennis, humilis, vix 6 cm alta. Rhizoma elongatum, usque 9 cm longum, tenue, ad nodos squamis siccis ovatis lanceolatisve ornatum. Caules singuli vel pauci, simplices, sulcati, secus sulcos pilis multicellularibus ferrugineis dense praediti, ceterum sparse pubescentes. Folia opposita, sparsa, petiolis 5—10 mm longis, complanatis, basi plus minus dilatatis, pilosis; lamina ovata usque oblongo-ovata, 15—25 mm longa, 8—12 mm lata, supra pilis multicellularibus ferrugineis dense vestita, subtus sparse albo-furfuracea, margine crenata vel dentata. Flores 2—4 ad apicem ramuli siti; bracteis foliaceis; pedicellis c. 3 mm longis. Calyx cylindricus, crasse membranaceus, c. 10 mm longus, antice leviter fissus, longe et grosse villosus, dentibus 5, postico subulato, reliquis rotundis, margine saepe dentatis reflexis. Corolla c. 2.4—2.7 cm longa, rubella; galea falcato-curvata, parte antherigera leviter dilatata, fronte rotundata, apice inferne truncata utrinque 1-dentata ornata; labio infero c. 13—15 mm longo, 9—11 mm lato, lobis plus minus rotundatis, lobo medio majore, margine eroso-denticulata; filamenta omnia glabra.

Sichuan (四川): Xiangcheng (乡城), Rizhao mountain, alt. 4200m, on grass of hillside, 1981. 08. 12., Exped. Qinghai-Xizang 81-4675 (Holotypus, PE).

多年生草本，低矮，高不到 6 cm。根茎伸长达 9 cm，细弱，其节上被卵形至披针形的干燥鳞片。茎单出或少数，不分枝，具棱沟，沿棱有锈色多细胞毛组成的密毛线，其余处被疏毛。叶对生，稀疏，叶柄长 5—10 mm，扁平，基部多少膨大，被毛，叶片卵形至长圆状卵

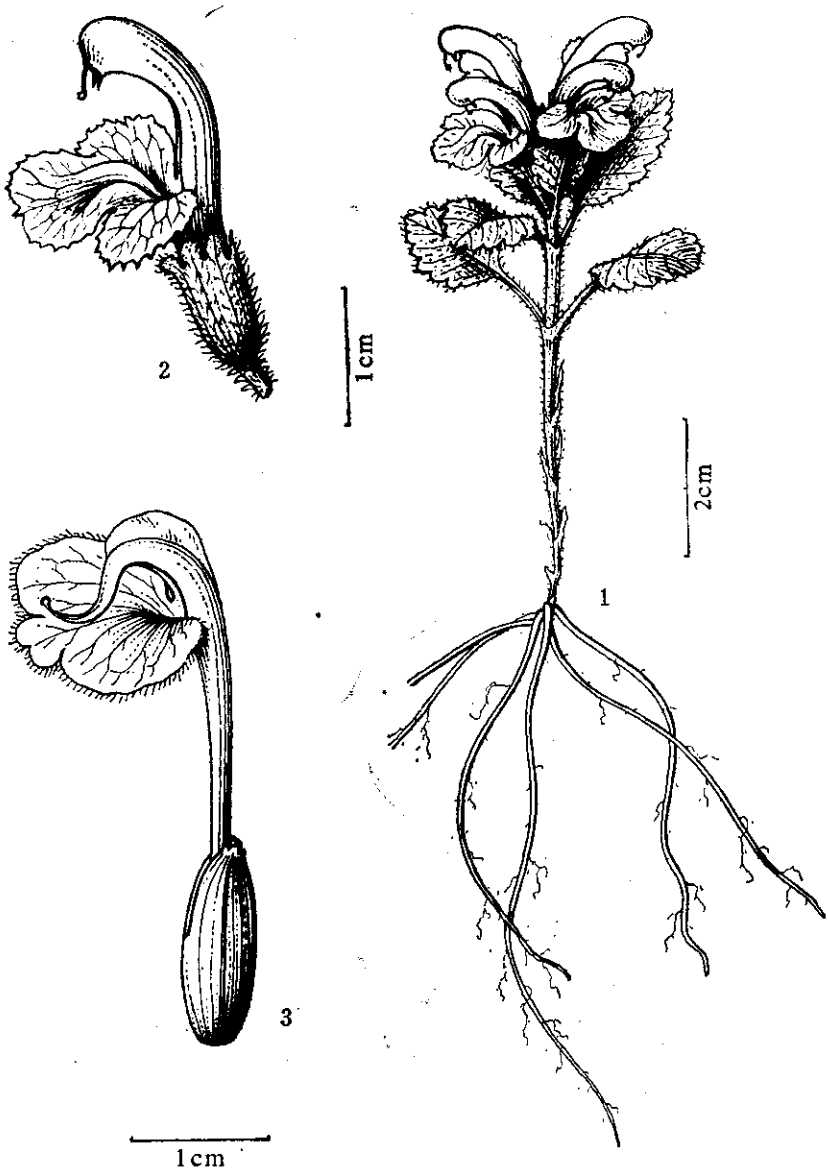

图3 1—2.日照马先蒿 *Pedicualris rizhaoensis* 1.植株 plant; 2.花 flower。 3.乡城马先蒿 *P. xiangchengensis* 3.花 flower.

形,长 15—25 mm, 宽 8—12 mm, 上面密被多细胞锈色柔毛,下面疏生白色肤屑状物,边缘有圆锯齿或锯齿。花每枝顶端有 2—4 朵,苞片叶状,花梗长约 3 mm; 花萼圆筒形, 厚膜质,长约 10 mm, 前方稍开裂,被长而厚的长柔毛,萼齿 5 枚,后方 1 枚钻状, 其余的圆形,边缘常有反卷的锯齿。花冠长约 2.4—2.7 cm, 粉红色,盔作镰状弓曲,含雄蕊的部分稍扩大,额端圆形,顶端下部截形,两侧各具一齿,下唇长约 13—15 mm, 宽 9—11mm, 裂片多少圆形,中裂较大,边缘有啮痕状细齿;花丝全部无毛。

本种与绒毛马先蒿 *P. tomentosa* Li 相亲缘,但下唇边缘有显明的啮痕状细齿,中裂

大于侧裂，花冠粉红色而不同。

7. **贡山马先蒿**　新种　图 2：1—3。

Pedicularis gongshanensis H. P. Yang, sp. nov. (Ser. Cernuae Li)

Species *P. cernuae* Bonati affinis, sed calycis dentibus 5, omnibis stipitatis, apice serrato-lobis, corollae galea margine antice haud edentata, sed tantum ad apicem dentata, lobio infero margine haud repando-denticulato facile differt.

Perennis, ad 30 cm altus, siccitate plus minus nigrescens. Rhizoma elongatissimum, usque 6 cm longum. Caules caespitosi, ei anni praecedentis saepe persistentes, basi squamigeri. Folia basalia longissime petiolata, petiolis ad 10 cm longis, laxe pilosis, saltem basin versus membranaceo-alatis, leviter dilatatis; lamina oblonga, 4—8 cm longa, pinnatisecta, segmentis 7—12-jugis, oblongis, margine saepe dentatis reflexis, utrinque laxe pilosis; caulina opposita, 1—2 paria vel 4 verticillata, pauca, minora. Infloresentia terminalis, floribus c. 16—24, racemosis; bracteae foliiformes, pedicellis gracilibus, c. 3 mm longis. Calyx cylindricus, c. 15 mm longus, antice ad 1/3 fissus, extus sparse albo-pilosus, dentibus 5, inaequalibus, postico minore, postico-lateralibus 2 maximis, omnibus leviter stipitatis, apice leviter dilatatis, serrato-lobisve. Corolla 30—40 mm longa, rubra, tubus c. 15 mm longus, glaber; galea leviter falcata, apice dentata; labio infero quam galea manifeste breviore, c. 10—12 mm longo, patente, margine ciliato, lobo medio leviter minore; filamenta omnia pubescentia; stylus ex apice rostri exsertus. Capsula ovato-oblonga, 15—20 mm longa, leviter obliqua, apice apiculata.

Yunnan (云南): Gongshan (贡山), alt. 3600 m, on shrubby grass of hillside, 1982. 07. 22., Exped. Qinghai-Xizang 82-8458 (Holotypus, PE).

多年生草本，高达 30 cm，干时多少变黑色。根茎伸长，长达 6 cm。茎丛生，前年者常宿存，基部有鳞片。基生叶有长柄，柄长达 10 cm，被疏毛，至少近基部有稍膨大而膜质的翅；叶片长圆形，长 4—8 cm，羽状全裂，裂片 7—12 对，长圆形，边缘常有反折的锯齿，两面均有疏毛，茎生叶对生，1—2 对或 4 枚轮生，少数，较小。花序顶生，有花 16—24 朵，总状排列；苞片叶状，花梗纤细，长约 3 mm。花萼圆筒形，长约 15 mm，前方开裂至 1/3，外面疏被白色柔毛，萼齿 5 枚，不等，后方的 1 枚较小，后侧方的 2 枚最大，全体均稍具柄，顶端微膨大并具锯齿。花冠长 30—40 mm，红色，花管长约 15 mm，无毛，盔略作镰状，顶端有齿；下唇显短于盔，长约 10—12 mm，开展，边缘具缘毛，中裂稍较小，花丝全体被毛，花柱从喙端伸出。蒴果卵状长圆形，长 15—20 mm，稍偏，顶端有尖头。

本种与俯垂马先蒿 *P. cernua* Bonati 相近，但萼齿 5 枚均有柄，端有齿状裂，花冠盔部前缘无齿，但仅盔端有齿，下唇边缘无波状齿而易于区分。

8. **独龙马先蒿**　新种　图 1：4—5。

Pedicularis dulongensis H. P. Yang, sp. nov. (Ser. Wilsoniae Li).

Species *P. wilsonii* Bonati affinis, sed foliis minoribus 3—6 cm longis, calycis dentibus 5, tubo corollae rectiusculo ne vix contorto, extus pubescenti differt.

Perennis, ad 10 cm alta, siccitate plus minus nigrescens. Rhizoma breve, radicem cylindricam gracilem 3.5 cm longam emittens. Caules caespitosi, brevissimi, 1 cm alti vel vix evoluti. Folia basalia et caulinaria dense caespitosa, petiolis 10—30 mm longis, tenuibus et complanatis, glabris; lamina elliptico-oblonga usque oblonga, c. 3 cm longa, pinnatisecta, segmentis 5—9-jugatis, ovatis, iterum, pinnatilobatis vel grosse serratis, superne glabra, inferne breviter hirta. Flores axil-

lares; pedicelli 1—1.5 cm longi. Calyx cylindrico-campanulatus, pilis albis multicellularibus dense obtectus, c. 18 mm longus, antice ad 2/3 fissus, dentibus 5, inaequalibus, postico minore, omnibus foliaceis. Corolla c. 6—7 cm longa, rubiginosa; tubus rectiusculus c. 4—5 cm longus, ne vix contortus, extus multicellulari-pubescens; galea pro parte antherifera valde dilatata, c. 7—10 mm longa, subfalcato-geniculata, antice gradatim in rostrum c. 5—6 mm longum attenuata, rostro curvato; labio infero magno, c. 12—14 mm longo, 30—35 mm lato, lobo medio minore; filamenta omnia pubescentia; stylus ex apice rostri exsertus. Capsula ovato-oblonga 10—15 mm longa, asymmetrica.

Yunnan (云南): Gongshan (贡山), Taron, alt. 3500—3600m, in moist meadow of mountain slopes, 1982. 07. 24., Exped. Qinghai-Xizang 82-8506 (Holotypus, PE).

多年生草本,高达 10 cm,干时多少变黑色。根茎短,根圆筒形,纤细,长约 3.5 cm。茎丛生,极短,高 1 cm 或几不发育。基出叶和茎生叶密丛生,叶柄长 10—30 mm,细瘦而扁平,无毛;叶片椭圆状长圆形至长圆形;长约 3 cm,羽状全裂,裂片 5—9 对,卵形,再次羽状裂或具粗齿,上面无毛,下面被短毛。花腋生,花梗短,长 1—1.5 cm。花萼圆筒状钟形,密被白色多细胞毛,长约 18 mm,前方开裂至 2/3;萼齿 5,不等,后方的 1 枚较小,全体叶状。花冠长约 6—7 cm,暗红色,花管直,长约 4—5 cm,几不扭旋,外面被多细胞柔毛;盔含雄蕊的部分很膨大,长约 7—10 mm,近于镰状膝曲,前方逐渐变细成长约 5—6 mm 的喙,喙弯曲,下唇大,长约 12—14 mm,宽约 30—35 mm,中裂较小,花丝全部被柔毛,花柱伸出于喙外。蒴果卵状长圆形,长 10—15 mm,不对称。

本种与扭管马先蒿 *P. wilsonii* Bonati 相近,但叶较小,长 3—6 cm,萼齿为 5 枚,花管直而不扭且外面被毛而不同。